

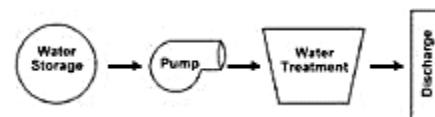
Construction Dewatering Operations Part II: Sediment Treatment

This bulletin is the second in a series on managing Construction dewatering operations to prevent storm water pollution. The March 2001 bulletin presented dewatering management options and National Pollutant Discharge Elimination System (NPDES) permit requirements. This bulletin reviews sediment treatment requirements and methods.

Sediment is the most common pollutant associated with dewatering operations. Whether the contractor manages dewatering operations by re-using the water on site, discharging it to an adjacent facility or land, or discharging it by NPDES permit to a storm drain or receiving water, the water will often require treatment to remove sediment.

The Dewatering Process

The following figure illustrates the general dewatering process. Water is pumped from the location of accumulation to the treatment area on the construction site.



Following treatment, the water is discharged or reused on site, in accordance with the authorizing permit.

Sediment Treatment Requirements

Sediment treatment requirements depend on the final disposition of the water.

- For dewatering discharges to a storm drain or water body authorized under a separate Regional Water Quality Control Board (RWQCB) NPDES permit, sediment treatment requirements are specified in the permit.
- For dewatering under the Caltrans NPDES permit, if water is not visibly clear, it must be treated using best management practices prior to discharge.
- For discharge to a sanitary sewer or to an adjacent facility/land, sediment treatment requirements are specified in the permit or agreement with the sanitary sewer agency or landowner.
- For infiltration or reusing water on-site, water may require treatment to meet the specific reuse option.

Sediment Treatment Methods

A variety of treatment practices are available for use individually or in combination. Some common primary treatment methods include:

- **Desilting basins and sediment traps** are traditional sediment removal methods. The site must accommodate a basin of adequate size to provide the time necessary for particles to settle out.
- A **weir tank** is a steel tank with interior weirs (or baffles) that allow sediment to settle prior to discharge from the tank. The tanks remove debris, some oils, and particles 0.05 mm in size and larger.
- A **dewatering tank** is an open rectangular steel tank. The water drains through a filter fabric to a discharge header to remove particles as small as 0.025 mm, depending on the filter material used.
- When water is pumped into a **gravity bag** filter the sediment forms a soil blanket/filter that removes additional sediment as the water passes through the sides and bottom of the bag. A secondary filter of rock or straw bales is often constructed beneath the bag. Due to the need to form the soil blanket, it is difficult to guarantee particle size removal.



The following treatment methods remove finer-grained materials and may be useful as secondary treatment methods when needed to meet water quality goals.

- A **sand media filter** is a portable unit that removes particles larger than 0.01 mm. Water flows through the unit and sediment is captured by the sand particles. This method is cost-effective due to a filter backwashing feature.
- A **pressurized bag filter** is a unit composed of individual filter bags that are most effective when larger particles have been removed by prior treatment with a weir tank, sand filter, etc. It can remove particle sizes as small as 0.002 mm.
- A **cartridge filter** provides the highest degree of sediment removal. It is capable of removing sediments larger than 0.002 mm, but is most effective when used for



polishing after larger particles have been removed by other treatment methods.

Treatment for Other Pollutants

In addition to sediment, these methods can also reduce some other potential water quality pollutants such as oil and grease and nutrients. However, none remove the colloidal particles natural to some soils that increase water turbidity.

If the presence of toxic pollutants is suspected, contact the Construction Storm Water Coordinator for guidance.

